Human Resource Management Outsourcing Decision for Small and Medium-sized Enterprises in China

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Abstract

Human resource management (HRM) plays an important role in every enterprise. Nowadays, in China, more and more enterprises, not only large companies, but also small and medium-sized enterprises (SMEs) choose to outsource their HRM activities for economic and strategic benefits. According to the feature of HRM in SMEs, this paper builds a more systematic and practical human resource management outsourcing decision model for SMEs. In this decision model, HRM activities are classified into transaction, profession and strategy levels, and economic benefit, core competence enhancement and risks are taken into consideration. Applying multi-objective intelligent weighted grey target decision method based on combination weighting approach, the decision model can help the enterprise decide which HRM activities should be outsourced in priority sequence. The study proposes a scientific guidance for China's SMEs to make the HRM outsourcing decision.

Keywords: combination weighting method, decision making, human resource management outsourcing, multi-objective intelligent weighted grey target decision model

1. Introduction

With the further development of economic globalization, the market has entered into a phase full of intense and specialized competition. Because of the limit of internal resources, enterprises have to focus on their core business, while sourcing out non-core business to others who can do it cheaper, faster and better. The outsourcing activities grew over 30% every year in the last two decades (Kabiraj & Sinha, 2016). Now, outsourcing has become a pervasive business practice used in a number of organizational functions, such as human resource management (Belcourt, 2006). Human resource management outsourcing is a management mode that enterprises outsource some of the human resource management activities to a third party service provider or service seller for economic and strategic benefits (Greer, Youngblood, & Gray, 1999). Enterprises undertake HRM outsourcing to reduce cost, achieve better service, gain management flexibility and focus on the core competences (Woodall, Scott-Jackson, Newham, & Gurney, 2009).

In 2011, four government departments released a document about the definition of SMEs in China. (Ministry of Industry and Information Technology of the People's Republic of China, 2012). Different industries have different criteria on the indicators like practitioners, operating income and total assets when defining SMEs. In the context of Chinese society, compared to large enterprises, SMEs usually haven't reached a certain scale, formed a specific and mature management mode, nor occupied an important place in the market. As the statistic shows, SMEs in China have an average lifetime for no more than 3 years. With the strong desire to live through the economic transition period, SMEs in China are urgent to update their management concepts and find more efficient management modes. The most urgent problem in SMEs is human resource management problem. As the outsourcing market is growing mature gradually, outsourcing has become a good choice for SMEs to deal with the HRM functions.

HRM outsourcing has been well researched in large companies, while is relatively less researched in SMEs. However, for SMEs, how to make the HRM outsourcing decision is usually quite complex. This paper provides a feasible approach for SMEs operators to make the HRM outsourcing decision by building a systematic and practical decision model. With the wide application of HRM outsourcing in SMEs, not only SMEs can improve their management abilities, but also the outsourcing market in China will develop rapidly.

2. HRM Outsourcing Decision Model for SMEs in China

2.1 Selecting the Decision Alternatives

Many scholars tried to sort HRM functions into several modules. 3P model researches HRM activities from three

aspects: position, performance, and payment (Lin, 1999). Then, the 3P model has been expanded to a 5P model: position, people, performance, payment, and positive attitude (Liao, 2004). In some enterprises, HRM activities are classified into six modules: human resource planning, recruitment and allocation, training and development, performance management, compensation and benefit management, and employee relationship management. The existing HRM outsourcing decision models usually take these modules as alternatives.

However, compared to large firms, enterprises of smaller scale have higher flexibility, but at the meantime, less liquidity and weaker ability to resist risks, which means improper decision costs more in SMEs. In addition, due to the lack of professional HRM staff in SMEs, it is difficult for them to refine the HRM outsourcing decision and put it into practice. Based on these two reasons, existing HRM outsourcing decision models are not specific enough to meet the demand of SMEs.

To make the decision model more specific and practical, this paper divides every HRM function into three levels, transaction level, profession level, and strategy level. Activities of transaction level are easy to be performed and can be repeated; activities of profession level need to be performed by professional staff; and activities of strategy level are closely related to organization operation, which are difficult for human resource managers. This model helps the enterprise decide which level of which HRM function should be outsourced in priority order. In that way, the enterprise can control risk and reduce the difficulty of implementation. As it is shown in Table 1, this paper divides five HRM functions into 13 decision alternatives.

Table 1. Decision alternatives of HRM outsourcing

	Transaction level	Profession level	Strategy level
Recruitment & Allocation	Archives management & Release recruitment information	Recruitment	Institution setup & Personnel planning
Training & Development		Training design and implementation	Training system planning
Performance management		Performance appraisal and feedback	Performance management system design
Compensation & Benefit management	Social insurance payment & Salary and welfare payment	Compensation and benefit structure design and calculation	Compensation strategy design
Employee relationship management	Labor contracts signing	Employee communication and coordination	Enterprise culture creating

2.2 Selecting the Decision Indicators

According to the existing researches, enterprises undertake outsourcing to reduce cost, achieve better service, and focus on core strategy. However, outsourcing generates risks as well (Delmotte & Sels, 2007). Thus, the decision as to which HRM function should be outsourced is often driven by lots of factors. Transaction cost economics (TCE) and resource based view (RBV) are two main rationales that underpin different decision models theoretically. TCE suggests that outsourcing occurs only when enterprise can achieve lower total cost by transacting with external vendors (Coase, 1937). The RBV together with core competence theory provide another perspective on how to decide which HRM function should be outsourced, the resource of an enterprise is so limited that should be focused on building core competence, while outsourcing the peripheral activities (Pereira & Anderson, 2012). Most decision models about HRM outsourcing are based on these two rationales. For example, David Lepark and Scolt Snell converge on two dimensions, value and uniqueness, when determining which HRM activity should be outsourced (Lepark & Snell, 1998). Another decision model is developed by Alan Speaker, he uses a two-by-two typology to classify HRM activities: the type and the strategic value of HRM activities (Klaas, McClendon, & Gainey, 1999). Domestic scholar Zhilin Hu holds the view that whether a HRM activity should be outsourced or not depends on its benefit-cost ratio and contribution to core competence (Hu, 2004).

Obviously, the views of TCE and RVB take short-term and long-term interests into consideration respectively in HRM outsourcing decision. Short-term interests ensure the financial security, while long-term interests make sure the decision will be good for the enterprise with the long-term development. However, as we all know, benefits come with risks. A proper decision can bring the enterprise expected benefits, at the same time, keep potential risks under control. Thus, this paper suggests that enterprises can make HRM outsourcing decision according to a model of three dimensions: short-term feasibility, long-term expectation and risk controllability, as Figure 1 shows.
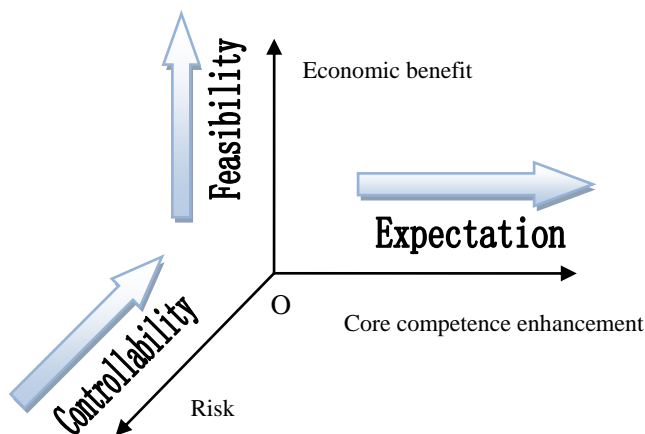
Figure 1. Three dimensions of HRM outsourcing decision model in SMEs

As the three dimensions of this decision model can't be measured directly, some more specific indicators are used to describe them.

Table 2. Decision indicators of HRM outsourcing in SMEs

Dimensions	Indicators
Economic benefit	Reduce the cost of daily human resource management
	Reduce the economic loss caused by unprofessional management
	Reduce the investment in non-core business to control cost expense
Core competence enhancement	Improve the efficiency of HRM
	Acquire advanced professional technology, expertise and management concept
	Focus on the strategic role of HRM
	Improve the adaptability and flexibility of HRM
	Improve the communication and justification in organization
Risks	Make wrong judgment on vendor's service quality
	Lose control of human resource management
	Be the obstacles of enterprise learning and innovation
	Have culture conflicts with vendor
	Employees have resistant emotion
	Reveal confidential information

2.3 The Determination of Weights

Each indicator makes different contribution to the decision making, the importance of indicators is reflected in the weights. Methods of determining weights can be classified into two catalogs, subjective weighting approaches and objective weighting approaches. Subjective weighting approaches, like Delphi and AHP, mainly depend on the knowledge and experience of decision makers, but with great randomness. Objective weighting approaches, like factor analysis and entropy, determine weights by digging the relationship in original data, which can be objective but cannot reflect the preference of decision makers. That means, subjective and objective weighting approaches have their advantages and disadvantages respectively (Jia, Tong, Wang, & Li, 2016). Therefore, the application of combination weighting method can overcome the limitations of using subjective or objective weighting approach only. This paper introduces the combination weighting method based on AHP and Maximizing Deviation method.

From the point of Maximizing Deviation method, if the performance values of decision alternatives have little differences under an indicator, it means that such an indicator has small impact on the decision making. On the contrary, if the differences among all performance values of decision alternatives under an indicator are obvious, it means such an indicator plays an important role in selecting the best alternative. So, Maximizing Deviation method thinks that the bigger the deviation of the values of decision alternatives under an indicator is, the bigger the weight of the indicator should be (Liang, Zhang, & Liu, 2015). Extremely, if the value of each alternative has no difference under a given indicator, this indicator has no contribution to the decision making, and its weight should be set to be 0.

A simple algorithm put forward by Rong Zhang based on the Maximizing Deviation method is used to give objective weight to each indicator (Zhang, SF. Liu, B. Liu, 2007). Let $\eta = (\eta_1, \eta_2, \cdots \eta_s)$ denote the objective weights of indicators 1 to s, and there are decision alternatives 1 to m. t_{ik} represents the sample value of alternative i under indicator k. For the indicator k, let $W_{ik}(\eta)$ denote the deviation between the alternative i and all the other alternatives, and let $W_k(\eta)$ denote the total deviation among all the decision alternatives in terms of the indicator k. Define:

$$W_{ik}(\eta) = \sum_{j=1}^{m} \eta_k \left| t_{ik} - t_{jk} \right| \tag{1}$$

$$W_K(\eta) = \sum_{i=1}^{m} W_{ik}(\eta) = \sum_{i=1}^{m} \sum_{j=1}^{m} \eta_k \left| t_{ik} - t_{jk} \right| \tag{2}$$

The weight of indicator k can be obtained as $W_k(\eta)$ divided by the total deviation of all indicators. Thus, η_k can be expressed as formula (3):

$$\eta_k = \frac{W_k(\eta)}{\sum_{k=1}^{s} W_k(\eta)} = \frac{\sum_{i=1}^{m} \sum_{j=1}^{m} \left| t_{ik} - t_{jk} \right|}{\sum_{k=1}^{s} \sum_{i=1}^{m} \sum_{j=1}^{m} \left| t_{ik} - t_{jk} \right|} \tag{3}$$

The subjective weight vector $\theta = (\theta_1, \theta_2, \cdots \theta_s)$ can be obtained by using AHP method. Commonly, to a certain indicator, if one of its objective weight or subjective weight is equal to 0, the comprehensive weight of this indicator should be set to be 0. Based on this, the comprehensive weight can be obtained by normalizing the product of objective weight and subjective weight:

$$\omega_k = \frac{\eta_k * \theta_k}{\sum_{k=1}^{s} \eta_k * \theta_k} \tag{4}$$

The comprehensive weight vector can be expressed as $\omega = (\omega_1, \omega_2, \cdots \omega_s)$.

2.4 Multi-objective Intelligent Weighted Grey Target Decision Model

Except the qualitative models mentioned above, many scholars use quantitative models to deal with the HRM outsourcing problems to make the decision more objective. The existing quantitative models used in HRM outsourcing decision, like AHP and fuzzy comprehensive evaluation (Li, 2007), can just sequence the decision alternatives. Multi-objective intelligent weighted grey target decision model is the supplement and improvement of grey target decision model (Liu, Yuan, & Sheng, 2010). Alternatives may hit the target or miss the target, this method can help decision makers get rid of unsuitable alternatives and sequence the suitable alternatives.

2.4.1 Define Event Set, Alternative Set, Decision Scheme Set and Decision Objectives

Suppose there are n events to research in this problem, which form an event set $A = \{a_1, a_2, \cdots, a_n\}$. All alternatives could be selected are denoted as $B = \{b_1, b_2, \cdots, b_m\}$. Set A and set B compose the decision scheme set $S = A \times B = \{s_{ij} = (a_i, b_j) | a_i \in A, b_j \in B\}$. There are k decision objectives, $k = 1, 2, \cdots, s$.

2.4.2 Obtain the Effect Sample Matrix of Each Objective According to Experts' Evaluation

The score standard mainly takes a five-point Likert scale for reference. The occurrence possibility of each indicator is divided into five levels to let managers choose. The score standard is shown in Table 3.

Table 3.Score standard of indicators' occurrence possibility

Score scope	Evaluation criterion
0~0.1	Strongly impossible
0.2~0.3	Unlikely
0.4~0.6	Neutral
0.7~0.8	Likely
0.9~1.0	Strongly possible

The effect sample value of s_{ij} relative to objective k is denoted as $u_{ij}^{(k)}(i = 1, 2, \cdots, n; j = 1, 2, \cdots, m)$, so the effect sample matrix of the decision scheme set S under the objective k is:

$$U^{(k)} = (u_{ij}^{(k)}) = \begin{bmatrix} u_{11}^{(k)} & u_{12}^{(k)} & \cdots & u_{1m}^{(k)} \\ u_{21}^{(k)} & u_{22}^{(k)} & \cdots & u_{2m}^{(k)} \\ \vdots & \vdots & \ddots & \vdots \\ u_{n1}^{(k)} & u_{n2}^{(k)} & \cdots & u_{nm}^{(k)} \end{bmatrix}$$

2.4.3 Set up the Critical Effect Values to Get the Consistent Effect Measurement Matrix

The objectives can be classified into three kinds, income-based index, cost-based index and fixed index.

If objective k is an income-based index, the larger the sample value is, the better the result is. Let $u_{ij}^{(k)} \in \left[u_{i_0 j_0}^{(k)}, \max_i \max_j \{ u_{ij}^{(k)} \} \right]$ be the grey target in terms of objective k, $u_{i_0 j_0}^{(k)}$ is the critical effect value of objective k. Define the effect measurement value of income-based index as:

$$r_{ij}^{(k)} = \frac{u_{ij}^{(k)} - u_{i_0 j_0}^{(k)}}{\max_i \max_j \{ u_{ij}^{(k)} \} - u_{i_0 j_0}^{(k)}} \tag{5}$$

If objective k is a cost-based index, the smaller the sample value is, the better the result is. Let $u_{ij}^{(k)} \in \left[\min_i \min_j \{ u_{ij}^{(k)} \}, u_{i_0 j_0}^{(k)} \right]$ be the grey target in terms of objective k, $u_{i_0 j_0}^{(k)}$ is the critical effect value of objective k. Define the effect measurement value of cost-based index as:

$$r_{ij}^{(k)} = \frac{u_{i_0 j_0}^{(k)} - u_{ij}^{(k)}}{u_{i_0 j_0}^{(k)} - \min_i \min_j \{ u_{ij}^{(k)} \}} \tag{6}$$

If objective k is a fixed index, the more accurately the sample value falls into the certain interval, the better the result is. Let $u_{ij}^{(k)} \in \left[A - u_{i_s j_s}^{(k)}, A + u_{i_s j_s}^{(k)} \right]$ be the grey target in terms of objective k. If $u_{ij}^{(k)} \in \left[A - u_{i_s j_s}^{(k)}, A \right]$, denote formula (7) to be the lower limit effect measurement value of the fixed index.

$$r_{ij}^{(k)} = \frac{u_{ij}^{(k)} - A + u_{i_s j_s}^{(k)}}{u_{i_s j_s}^{(k)}} \tag{7}$$

If $u_{ij}^{(k)} \in \left[A, A + u_{i_s j_s}^{(k)} \right]$, denote formula (8) to be the upper limit effect measurement value of the fixed index.

$$r_{ij}^{(k)} = \frac{A + u_{i_s j_s}^{(k)} - u_{ij}^{(k)}}{u_{i_s j_s}^{(k)}} \tag{8}$$

After normalization, to all objectives, the effect measurement value bigger is, the result better is. Thus, define the consistent effect measurement matrix of objective k as:

$$R^{(k)} = (r_{ij}^{(k)}) = \begin{bmatrix} r_{11}^{(k)} & r_{12}^{(k)} & \cdots & r_{1m}^{(k)} \\ r_{21}^{(k)} & r_{22}^{(k)} & \cdots & r_{2m}^{(k)} \\ \vdots & \vdots & \ddots & \vdots \\ r_{n1}^{(k)} & r_{n2}^{(k)} & \cdots & r_{nm}^{(k)} \end{bmatrix}$$

$r_{ij}^{(k)} \in [-1,1]$ is dimensionless, the larger $r_{ij}^{(k)}$ is, the better the result is. If $r_{ij}^{(k)} \in [0,1]$, hit the target; if $r_{ij}^{(k)} \in [-1,0]$, miss the target.

2.4.4 Get the Comprehensive Effect Measurement Matrix R

$$r_{ij} = \sum_{k=1}^{s} \omega_k * r_{ij}^{(k)} \tag{9}$$

According to formula (9), it's easy to get the comprehensive effect measurement matrix R:

$$R = (r_{ij}) = \begin{bmatrix} r_{11} & r_{12} & \cdots & r_{1m} \\ r_{21} & r_{22} & \cdots & r_{2m} \\ \vdots & \vdots & \ddots & \vdots \\ r_{n1} & r_{n2} & \cdots & r_{nm} \end{bmatrix}$$

2.4.5 Make the Decision

It's easy to tell whether the alternative hits the target or misses the target. The alternatives that miss the target are out of the choice; arrange $r_{ij} > 0$ according to the order from small to large, then can get the optimal sequencing of every feasible alternative.

3. Demonstrated Application

X is a medium-sized enterprise in Jiangsu province, China. To survive in the fierce competition, Managers in X enterprise are considering outsourcing some of its HRM activities instead of performing internally to reduce cost and enhance its core competence. Apply the multi-objective intelligent weighted grey target decision model to help X

enterprise make the HRM outsourcing decision. 15 experts and managers are involved to make the decision which HRM activities should be outsourced. Let everyone score the candidate activities according to each indicator, and get the average scores.

3.1 Define Event Set, Alternative Set, Decision Scheme Set and Decision Objectives

In this problem, the event is the HRM outsourcing decision of the enterprise X, which means event set $A = \{a_1\}$. The alternatives are HRM activities that could be outsourced, $B = \{b_1, b_2, \cdots, b_{13}\}$. A and B compose the decision scheme $S = \{s_{ij} = (a_i, b_j) | a_i \in A, b_j \in B, i = 1; j = 1, 2, \cdots, 13\} = \{s_{11}, s_{12}, \cdots, s_{113}\}$. The decision making has to take three dimensions into consideration: short-term feasibility, long-term expectation and risk controllability. Each dimension is described by some specific indicators, so there are 14 objectives, $k = 1, 2, \cdots 14$.

3.2 Obtain the Effect Sample Vectors

Obtain 14 effect sample vectors $U^{(K)}, k = 1, 2, \cdots, 14$ according to the effect sample value of s_{ij} relative to 14 indicators scored by decision makers.

3.3 Determining the Indicators' Weights under Each Dimension and Dimensions' Weights

The sum of indicators' weights under each dimension and the sum of three dimensions' weights are both equal to 1. Assign the weights by the combination weighting method based on AHP and Maximizing Deviation method, the weights are shown as follow:

$$\omega^{(1)} = [0.44, 0.08, 0.48]$$
$$\omega^{(2)} = [0.15, 0.21, 0.50, 0.05, 0.09]$$
$$\omega^{(3)} = [0.08, 0.34, 0.12, 0.06, 0.24, 0.16]$$
$$\omega = [0.21, 0.19, 0.60]$$

3.4 Get the Effect Sample Vectors of Three Dimensions

According to 14 effect sample vectors and the weights of indicators under each dimension, it's easy to get the effect sample vectors of three dimensions.

$$U^{(1)} = [0.75, 0.60, 0.26, 0.66, 0.33, 0.62, 0.30, 0.80, 0.56, 0.30, 0.85, 0.61, 0.24]$$
$$U^{(2)} = [0.64, 0.71, 0.51, 0.72, 0.48, 0.73, 0.50, 0.59, 0.63, 0.49, 0.66, 0.54, 0.38]$$
$$U^{(3)} = [0.19, 0.27, 0.67, 0.37, 0.39, 0.56, 0.52, 0.14, 0.29, 0.57, 0.33, 0.47, 0.69]$$

3.5 Set up the Critical Effect Values to Get the Consistent Effect Measurement Vectors

The enterprise can set up the critical effect value according to its expectation to economic benefit and core competence enhancement, as well as its tolerance to risk. Economic benefit and core competence enhancement are income-based indexes, and risk is a cost-based index. The critical effect value can be set between 0 and 1. The enterprise hopes to have at least neutral possibility to achieve benefit, so let $u_{i_0 j_0}^{(1)} = u_{i_0 j_0}^{(2)} = 0.5$. And it cannot tolerate risks more than neutral possibility, so let $u_{i_0 j_0}^{(3)} = 0.5$. Thus, the consistent effect measurement vector of each dimension is obtained:

$$R^{(1)} = [0.70, 0.30, -0.68, 0.45, -0.48, 0.33, -0.58, 0.86, 0.16, -0.58, 1, 0.32, -0.73]$$
$$R^{(2)} = [0.60, 0.93, 0.04, 0.98, -0.07, 1, -0.02, 0.39, 0.57, -0.06, 0.69, 0.19, -0.53]$$
$$R^{(3)} = [0.86, 0.63, -0.48, 0.36, 0.29, -0.16, -0.06, 1, 0.58, -0.19, 0.46, 0.09, -0.54]$$

3.6 Obtain the Comprehensive Effect Measurement Vector

According to formula (9), obtain the comprehensive effect measurement vector.

$$R = [0.78, 0.62, -0.43, 0.50, 0.06, 0.16, -0.16, 0.86, 0.49, -0.25, 0.62, 0.16, -0.58]$$

3.7 Result Analysis

If effect measurement value is less than 0, the alternative is out of choice. According to vector R, institution setup & personnel planning, performance management system design, compensation strategy design and enterprise culture creating are not suggested to be outsourced. The suggested outsourcing sequence of the rest activities is: social insurance payment & salary and welfare payment > archives management & release recruitment information > recruitment = labor contracts signing > training design and implementation > Structure design and calculation of compensation and benefit > Performance appraisal and feedback = Employee communication and coordination > Training system planning.

In this case, enterprise X is suggested to outsource the HRM activities of transaction level first, and then HRM activities of profession level, while these of strategy level are not suggested to be outsourced. This suggestion is suitable for most

SMEs in China. Outsourcing HRM activities of strategy level has big effect on organization operation, but usually needs large investment, and can easily cause risks. While outsourcing HRM activities of transaction level can achieve economies of scale, help enterprise focus on core business, and has little possibility to cause risks, but making little contribution to enhancing core competence. For one thing, Chinese economy is in the critical period of transition, SMEs are not willing to take big risks when making decisions. For another, outsourcing HRM activities of strategy level puts forward higher requirements to vendors. However, it's quite difficult for SMEs to find a satisfying vendor in the immature outsourcing market.

4. Conclusion

This paper analyzed the characters of HRM outsourcing decision making in SMEs, reviewed the existing HRM outsourcing decision models, and then applied the multi-objective intelligent weighted grey target decision model based on combination weighting method to the HRM outsourcing decision making in SMEs. And the demonstrated application shows the rationality and significance of this model. With the development of outsourcing market and the updating of HRM concepts in SMEs, HRM outsourcing will be adopted by more and more SMEs. This study provides a systematical and practical method for China's SMEs to make the HRM outsourcing decision.

As the result of demonstrated application shows, enterprise X prefers to outsource the HRM activities of transaction level. Like enterprise X, most SMEs in China are in a dilemma that they do not have the ability to undertake the HRM activities of strategy level internally, while outsourcing isn't a good choice either. To perform the HRM activities of strategy level well, several suggestions are proposed. (a) For SMEs, consider human resource management in the strategic perspective, and develop own HRM talents. HRM should be closely related to the operation strategy in an enterprise, and the ability to perform strategic HRM activities internally makes great contribution to enhancing the enterprise's core competence. (b) For HRM vendors, improve the professional quality and service attitude, and transfer their business to the HRM activities of strategy level. Although not many enterprises choose to outsource their strategic HRM activities now, it will become the development trend absolutely. Vendors who make good preparation will have the chance to stand out from the fierce competition. (c) For government, improve law and regulation to protect the legitimate interests of enterprises and vendors. One reason SMEs don't outsource their strategic HRM activities is that the imperfect law and regulation cannot protect their benefit when facing conflict with vendors. In China, the improvement of relevant law and regulation has big effect on accelerating the growth of HRM outsourcing market.

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